What is claimed is:

1. A perpendicular magnetic recording medium including a perpendicular orientation promoting underlayer between a substrate and a perpendicular magnetic recording layer for inducing the perpendicular orientation of the perpendicular magnetic recording layer, the perpendicular magnetic recording medium further comprising a crystal growth discontinuation layer between the perpendicular orientation promoting underlayer and the perpendicular magnetic recording layer for suppressing continuous crystal growth from the underlayer to the perpendicular magnetic recording layer.

2. The perpendicular magnetic recording medium of claim 1, wherein the perpendicular orientation promoting underlayer is formed of at least one material selected from the group consisting of Pt, Au, Pd, Ti, and an alloy of these materials.

3. The perpendicular magnetic recording medium of claim 1 or 2, wherein the crystal growth discontinuation layer has a thickness no greater than 20 nm.

4. The perpendicular magnetic recording medium of claim 1 or 2, wherein the crystal growth discontinuation layer is formed of at least one material selected from the group consisting of Ti, Ta, permalloy, and an alloy of these materials.

5. The perpendicular magnetic recording medium of claim 3, wherein the crystal growth discontinuation layer is formed of at least one material selected from the group consisting of Ti, Ta, permalloy, and an alloy of these materials.

6. The perpendicular magnetic recording medium of claim 1 or 2, wherein the perpendicular magnetic recording layer is formed of a CoCr alloy.

7. The perpendicular magnetic recording medium of claim 6, wherein the perpendicular magnetic recording layer further comprises at least one material selected from the group consisting of B, Pt, Ta, V, Nb, Zr, Y, and Mo.

8. The perpendicular magnetic recording medium of claim 1 or 2, further comprising a protective layer and a lubricant layer sequentially on the perpendicular magnetic recording layer.

9. The perpendicular magnetic recording medium of claim 1 or 2, wherein the perpendicular magnetic recording medium has a double-layer structure with including a soft magnetic layer between the substrate and the perpendicular orientation promoting underlayer.

10. The perpendicular magnetic recording medium of claim 1 or 2, wherein the perpendicular magnetic recording medium has a pseudo double-layer structure with a soft magnetic layer between the perpendicular orientation promoting underlayer and the perpendicular magnetic recording layer.